Section 7. Consumption Adjustments for Calculating Expenditures

Expenditures developed in the EIA Combined State Energy Data System (CSEDS) and published in this report are calculated by using the CSEDS consumption estimates that are published in the *State Energy Data Report 1999, Consumption Estimates (SEDR),* May 2001. Expenditures are calculated by multiplying the price estimates by the consumption estimates, which have been adjusted to remove process fuel, intermediate petroleum products, and other consumption that has no direct fuel costs, i.e., hydroelectric, geothermal, wind, solar and photovoltaic energy sources, and some wood and waste.

Almost all aspects of energy production, processing, and distribution consume energy as an inherent part of those activities. CSEDS industrial and transportation sector consumption estimates include energy consumed in the process of providing energy to the end-use consumer and are called "process fuel." Familiar examples include energy sources used in drilling for oil and gas and transporting natural gas and petroleum by pipeline. Another "process fuel" is the energy used in generating and delivering electricity to end users. Energy products that are subsequently incorporated into another energy product for end-use consumption are called "intermediate products." Motor gasoline blending components are familiar examples of intermediate products that are consumed as part of the finished motor gasoline sold at service stations and other outlets.

Process fuel and intermediate products are not purchased by the end user and, therefore, do not have prices. Although the end user does not consume either process fuel or intermediate products directly, he does pay for them, because the cost to the processor or distributor is passed on to the end user in the price of the final end-user product. If their use was left in the consumption estimates and was assigned prices, the expenditures would be counted twice, first as paid by the "processor" (producer, processor, or transporter) and again as included in the price to the end user.

Some renewable energy sources are not purchased. These include hydroelectric, geothermal, wind, photovoltaic, and solar thermal energy. The consumption of these sources, which are measured in CSEDS as kilowatthours of electricity produced, are not included in *SEPER* expenditure estimates since there are no "fuel costs" involved. Wood and waste can be purchased or obtained at no cost. Wood consumption estimates in the residential and commercial sectors and wood and waste in the industrial sector are adjusted in CSEDS to remove estimated quantities that were obtained at no cost.

To estimate energy expenditures in *SEPER*, the consumption of process fuel, intermediate products, and some of the renewable energy sources are subtracted from the end-use sector in which they are included in CSEDS, either the residential, commercial, industrial, or transportation sector, and there are no prices associated with them.

Process fuel consumption adjustments include:

1. Fuel (petroleum, natural gas, coal) and electricity consumed at refineries
2. Crude oil lease, plant, and pipeline fuel
3. Natural gas lease and plant fuel
4. Natural gas pipeline fuel
5. Electrical system energy losses (i.e., energy consumed in the generation, transmission, and distribution of electricity).

Intermediate product consumption adjustments include:

1. Aviation gasoline blending components
2. Motor gasoline blending components
3. Natural gasoline (1970 through 1983)

4. Pentanes plus (1984 forward)
5. Plant condensate (1970 through 1983)
6. Unfinished oils
7. Unfractionated stream (1970 through 1983).

Starting in 1984, natural gasoline (including isopentane) and plant condensate are reported together as the new product, pentanes plus, and the components of unfractionated stream are reported separately under liquefied petroleum gases.

Renewable energy consumption adjustments include:

1. Photovoltaic and solar thermal energy in the residential (including commercial) sector, the industrial sector, and at electric utilities;
2. Geothermal energy in the residential, commercial, and industrial sectors, and at electric utilities;
2. Electricity generated from hydropower and wind energy in the industrial sector and at electric utilities; and
3. Estimated portions of wood consumed in the residential and commercial sectors and wood and waste in the industrial sector that were obtained at no cost.

Table A51 shows the quantities of energy, by State, removed from CSEDS consumption to calculate expenditures for 1999. State estimates for 1970 through 1999 are available on the CSEDS Internet data files.

Table A52 shows the adjustments made to CSEDS national consumption estimates for 1970 through 1999 to derive the net consumption data used to calculate expenditures.

Adjustment Procedures

Refinery Fuel. Petroleum refinery consumption of distillate fuel, residual fuel, liquefied petroleum gases, petroleum coke, still gas, natural gas, coal, and electricity is individually estimated for each source and subtracted from each State's CSEDS industrial sector total.

Because crude oil consumption is not an individual fuel in CSEDS for 1970 through 1980, the small amounts of crude oil that were used at refineries during those years were allocated to residual and distillate fuels consumed at refineries. The allocation from crude oil refinery use to residual and distillate fuels refinery use was made according to each fuel's share of the total crude oil used directly (including losses) as residual and distillate fuels from the EIA *Petroleum Supply Annual, Volume 1,* of each year, Table 2).

Refinery consumption of still gas, excluding still gas consumed as petrochemical feedstocks, is subtracted from the CSEDS industrial sector total for 1970 through 1985. Beginning in 1986, EIA data series no longer report refinery fuel and feedstock use separately, and all industrial still gas consumption is removed.

Refinery fuel consumption data are available in the data sources by State or group of States (1970 through 1980) and by Petroleum Administration for Defense District (PADD) (1981 forward). Where State-level consumption data are not available, the State-level estimates are derived by allocating the district's or group's total consumption to the individual States within the district or group that had operating refineries in a given year. Individual fuels are allocated to the refining States according to each State's share of the refining States' subtotal of industrial sector fuel consumption during the year. In some instances, estimated refinery fuel consumption exceeds the CSEDS estimate for total industrial consumption of a fuel within a State. When this occurs, the excess refinery fuel consumption is reallocated as shown in Table A53.

Intermediate Products. Aviation gasoline blending components, motor gasoline blending components, natural gasoline (1970 through 1983), pentanes plus (1984 forward), plant condensate (1970 through 1983), unfinished oils, and unfractionated stream (1970 through 1983) are used at refineries and blending plants to make end-use petroleum products, particularly motor gasoline. Accordingly, consumption of these products is completely removed.

Residential and Commercial Geothermal, Solar, and Wood. There are no fuel costs for geothermal, photovoltaic, and solar thermal energy sources; therefore, all consumption is removed from the expenditure calculations. Some residential and commercial wood is purchased and some acquired at no cost. Based on responses to the Form EIA-457, "1980 Residential Energy Consumption Survey," Census division percentages of wood purchased were developed and applied to the residential and commercial wood consumption in each State in the divisions in 1970 through 1989. Based on responses to the Form

Table A51. Estimates of Energy Consumed as Process Fuel, Intermediate Products, and Uncosted Renewables, 1999
(Billion Btu)

State	Refinery Use							
	Distillate	Residual	LPG	Other Petroleum [a]	Natural Gas	Coal	Electricity [b]	Total
AK	199	—	9	25,467	24,871	—	131	50,677
AL	57	17	8	11,047	30,717	—	7,944	49,790
AR	54	—	11	12,449	20,257	—	3,837	36,607
AZ	—	—	—	1,833	—	—	—	1,833
CA	890	1,948	2,868	203,691	87,581	—	9,837	306,816
CO	11	6	53	8,762	9,394	—	1,519	19,745
CT	—	—	—	4,523	—	—	—	4,523
DC	—	—	—	—	—	—	—	—
DE	17	2,611	1	21,631	1,167	12	303	25,742
FL	—	—	—	11,186	—	—	—	11,186
GA	220	2,351	124	7,269	8,519	163	2,955	21,602
HI	26	1,137	—	12,563	36	—	583	14,344
IA	—	—	—	2,262	—	—	—	2,262
ID	—	—	—	—	—	—	—	—
IL	50	726	1,494	114,757	13,565	—	3,641	134,234
IN	38	1,447	148	54,448	14,116	—	4,097	74,294
KS	33	1,030	1,821	31,684	5,508	—	886	40,962
KY	34	354	610	48,177	4,299	—	3,475	56,948
LA	163	35	405	290,287	148,807	—	7,242	446,938
MA	—	—	—	5,277	—	—	—	5,277
MD	—	—	—	2,331	—	—	—	2,331
ME	—	—	—	1,319	—	—	—	1,319
MI	33	1,532	238	22,112	14,015	—	3,234	41,164
MN	36	1,819	306	33,117	4,603	—	2,409	42,289
MO	—	—	—	1,531	—	—	—	1,531
MS	60	—	12	30,881	17,421	—	3,620	51,995
MT	7	135	11	16,745	2,035	—	998	19,932
NC	—	—	—	11,295	—	—	—	11,295
ND	16	213	100	6,681	1,190	—	261	8,460
NE	—	—	—	—	—	—	—	—
NH	—	—	—	2,827	—	—	—	2,827
NJ	73	1,414	341	88,267	11,164	1	1,100	102,360
NM	33	4	9	13,063	10,800	—	1,370	25,280
NV	165	65	184	354	2,574	—	1,690	5,033
NY	—	—	—	22,142	—	—	—	22,142
OH	36	5,500	403	62,977	14,927	—	6,445	90,288
OK	20	512	661	44,797	10,427	—	1,151	57,568
OR	—	—	—	—	—	—	—	—
PA	178	4,249	76	92,106	12,958	288	3,861	113,715
RI	—	—	—	—	—	—	—	—
SC	—	—	—	646	—	—	—	646
SD	—	—	—	—	—	—	—	—
TN	18	229	109	20,184	6,201	—	2,732	29,473
TX	327	18	2,411	601,968	312,621	—	22,943	940,288
UT	6	377	61	15,395	5,638	—	1,207	22,685
VA	151	3,804	72	12,455	5,535	183	1,699	23,898
VT	—	—	—	—	—	—	—	—
WA	217	1,200	1,180	54,763	9,765	—	6,146	73,272
WI	47	3,852	279	17,132	6,424	—	2,226	29,962
WV	107	207	15	2,639	2,781	127	933	6,808
WY	11	60	19	13,856	5,284	—	1,127	20,358
US	3,332	36,854	14,041	2,058,896	825,202	772	111,603	3,050,700

Table A51. Estimates of Energy Consumed as Process Fuel, Intermediate Products, and Uncosted Renewables, 1999 (Continued)
(Billion Btu)

State	Residential		Commercial		Industrial					Transportation	Electrical System Energy Losses	Total
	Geothermal and Solar [c]	Wood	Geothermal	Wood	Crude Oil Lease, Plant, and Pipeline Fuel	Natural Gas Lease and Plant Fuel	Hydro-electricity	Geothermal Wind and Solar	Wood and Waste	Natural Gas Pipeline Fuel		
AK	50	858	36	120	—	265,504	—	—	88	4,475	32,047	353,856
AL	155	3,782	—	530	—	15,850	—	42	86,611	22,918	537,495	717,173
AR	1,162	1,352	—	190	—	2,268	14	21	79,170	9,145	265,994	395,922
AZ	3,791	5,302	45	743	—	36	—	228	828	18,883	385,480	417,168
CA	19,169	20,601	538	2,888	—	67,197	15,602	324,774	60,616	9,507	1,569,883	2,397,592
CO	348	4,575	213	641	—	36,755	1,232	241	891	8,425	271,223	344,290
CT	281	2,901	—	407	—	—	586	—	18,671	666	199,238	227,273
DC	1	679	—	95	—	—	—	—	—	249	69,645	70,669
DE	110	820	—	115	—	—	—	—	336	48	70,544	97,715
FL	32,238	3,671	509	515	—	2,486	—	—	80,495	7,104	1,251,933	1,390,136
GA	292	7,890	7	1,106	—	—	296	21	111,269	9,082	753,122	904,688
HI	1,350	—	4	—	—	—	1,021	4,565	8,995	—	37,440	67,719
IA	111	3,132	213	439	—	—	151	3,359	7,925	7,898	254,262	279,752
ID	39	1,340	439	188	—	—	10,212	787	11,974	4,683	151,903	181,564
IL	669	7,482	—	1,049	—	89	932	4,049	14,833	55,217	886,998	1,101,502
IN	853	3,893	213	546	—	18	—	—	9,083	14,529	646,693	750,122
KS	67	2,913	220	408	—	30,785	128	—	1,276	31,602	226,093	334,454
KY	388	3,381	213	474	—	2,329	—	—	2,820	17,167	528,783	612,503
LA	273	2,242	213	314	—	189,188	8,296	42	68,042	50,015	523,226	1,288,789
MA	213	5,407	215	758	—	—	3,109	27,008	24,712	2,784	330,297	372,772
MD	166	5,266	—	738	—	1	18	—	15,855	3,314	395,001	422,691
ME	128	1,316	—	185	—	—	33,541	—	63,565	—	79,845	179,899
MI	1,213	6,501	213	911	—	9,241	942	—	44,480	23,301	695,130	823,096
MN	577	5,219	—	732	—	—	3,327	5,025	29,814	22,441	383,722	493,146
MO	208	6,173	—	865	—	—	—	—	803	6,837	461,577	477,996
MS	16	2,248	217	315	—	4,078	57	42	28,389	66,133	294,012	447,502
MT	64	1,036	144	145	—	1,057	23,189	70	6,805	6,109	88,790	147,341
NC	352	8,347	—	1,170	—	—	12,474	—	26,429	10,924	768,895	839,887
ND	113	758	113	106	—	9,098	—	—	483	9,934	60,917	89,982
NE	90	1,835	246	257	—	29	—	—	521	2,920	152,489	158,387
NH	44	1,130	—	158	—	—	11,092	1,842	14,026	2	66,103	97,224
NJ	708	3,181	—	446	—	—	179	—	18,111	4,278	472,662	601,925
NM	517	1,987	83	279	—	54,555	—	559	235	47,247	120,609	251,351
NV	597	1,988	510	279	—	8	212	30,369	—	826	175,508	215,330
NY	632	31,283	243	4,386	—	720	36,404	—	48,918	8,030	931,763	1,084,522
OH	687	7,325	213	1,027	—	1,117	—	—	141,246	18,088	1,098,178	1,358,168
OK	83	1,814	—	254	—	59,119	—	—	8,017	24,325	312,442	463,623
OR	895	4,794	325	672	—	—	4,192	1,024	14,234	10,815	317,838	354,787
PA	783	5,142	216	721	—	311	3,541	2,532	50,446	37,278	861,606	1,073,759
RI	42	907	—	127	—	—	63	—	-24,728	249	47,799	24,459
SC	161	4,180	—	586	—	—	421	—	65,672	3,701	490,046	565,412
SD	74	830	312	116	—	869	—	52	221	6,056	52,962	61,493
TN	105	4,685	—	657	—	27	6,741	—	22,675	25,885	622,926	713,174
TX	982	6,248	219	876	—	291,661	34	3,310	31,107	73,002	2,017,878	3,365,608
UT	73	1,937	158	272	—	25,132	87	341	935	2,703	146,265	200,586
VA	314	7,110	213	997	—	1,574	637	—	53,467	8,296	621,937	718,445
VT	30	607	—	85	—	—	8,018	—	3,103	8	36,951	48,804
WA	363	8,199	318	1,149	—	—	5,348	—	35,516	8,042	662,034	794,242
WI	360	3,556	—	499	—	—	2,593	—	53,190	4,201	424,825	519,186
WV	47	2,015	4	282	—	6,240	6,492	—	1,157	31,474	181,462	235,982
WY	5	576	649	81	—	23,539	—	134	—	14,437	78,767	138,546
US	71,991	220,413	7,472	30,901	—	1,100,882	201,183	410,435	1,343,328	755,255	22,113,190	29,272,211

[a] In this table, "other petroleum" consists of: still gas and petroleum coke consumed as process fuel; and aviation gasoline blending components, motor gasoline blending components, pentanes plus, and unfinished oils used as intermediate products.
[b] Electricity is converted at the rate of 3,412 Btu per kilowatthour.
[c] Includes small amounts of solar energy consumed by the commercial sector that cannot be separately identified.
—No consumption.
Source: State Energy Price and Expenditure Data System 1999.

Table A52. Energy Consumption Adjustments, 1970 Through 1999
(Trillion Btu)

Year	Total (Gross) Consumption	Adjustments													Net Consumption
		Residential		Commercial		Industrial						Transportation	Electrical System Energy Losses	Total	
		Geothermal and Solar [a]	Wood	Geothermal	Wood	Refinery Use	Crude Oil Lease, Plant, and Pipeline Fuel	Natural Gas Lease and Plant Fuel	Hydro-electricity	Geothermal, Wind, and Solar	Wood and Waste	Natural Gas Pipeline Fuel			
1970	67,761	—	298	—	6	2,714	—	1,442	34	—	788	740	11,517	17,539	50,222
1971	69,218	—	284	—	5	2,694	—	1,456	34	—	804	761	12,127	18,165	51,053
1972	72,775	—	282	—	5	2,847	—	1,497	34	—	859	786	13,110	19,420	53,355
1973	75,877	—	263	—	5	3,010	—	1,539	35	—	900	745	13,999	20,495	55,382
1974	74,065	—	275	—	5	2,983	—	1,520	33	—	896	684	14,198	20,595	53,470
1975	72,066	—	316	—	6	2,884	—	1,434	32	—	822	595	14,384	20,473	51,593
1976	76,103	—	357	—	7	2,907	—	1,679	33	—	942	559	15,255	21,739	54,364
1977	78,151	—	402	—	8	3,008	—	1,706	33	—	989	544	16,060	22,750	55,401
1978	80,192	—	462	—	9	2,939	—	1,694	32	—	1,081	541	16,850	23,608	56,584
1979	81,067	—	543	—	10	3,078	—	1,534	34	—	1,086	613	17,063	23,960	57,107
1980	78,466	—	633	—	15	3,052	—	1,058	33	—	1,283	650	17,387	24,111	54,355
1981	76,601	—	640	—	15	2,204	—	959	33	—	1,354	660	17,464	23,329	53,272
1982	73,399	—	690	—	17	2,089	—	1,144	33	—	1,310	614	17,100	22,995	50,404
1983	73,279	—	681	—	16	2,121	140	1,010	33	—	1,480	505	17,583	23,571	49,708
1984	76,912	—	690	—	16	2,254	135	1,113	33	—	1,510	545	18,157	24,454	52,458
1985	76,852	—	673	—	18	2,046	128	1,001	33	—	1,503	521	18,631	24,554	52,299
1986	77,058	—	655	—	20	2,285	103	954	33	—	1,478	501	18,593	24,623	52,435
1987	79,579	—	633	—	22	2,485	72	1,194	33	—	1,472	538	19,156	25,606	53,973
1988	83,119	—	658	—	24	2,696	85	1,134	33	—	1,531	633	19,887	26,681	56,438
1989	84,580	58	682	3	25	2,710	59	1,103	90	149	1,320	650	20,294	27,142	57,438
1990	84,058	61	337	3	21	2,803	51	1,269	100	192	1,241	682	20,249	27,010	57,048
1991	84,039	64	355	3	23	2,668	39	1,164	99	208	1,224	622	20,478	26,946	57,093
1992	85,200	66	374	3	24	2,954	27	1,209	97	214	1,278	608	20,092	26,946	58,254
1993	87,031	68	308	3	25	2,878	21	1,199	117	240	1,309	643	20,601	27,412	59,618
1994	88,802	70	302	4	25	2,991	19	1,153	135	252	1,233	706	20,871	27,761	61,041
1995	90,614	71	335	5	25	2,915	15	1,253	151	245	1,273	723	21,411	28,421	62,194
1996	93,522	73	334	5	27	3,203	14	1,280	169	254	1,319	734	22,002	29,415	64,107
1997	93,991	73	233	6	26	3,196	5	1,251	183	236	1,349	781	22,258	29,596	64,395
1998	94,078	72	206	7	26	3,041	—	1,213	150	243	1,378	657	22,804	29,797	64,281
1999	95,682	72	220	7	31	3,051	—	1,101	201	377	1,343	755	22,113	29,272	66,410

[a] Includes small amounts of solar energy consumed by the commercial sector that cannot be separately identified.

—No consumption.

Note: Totals may not equal sum of components due to independent rounding.

Sources: **Total (Gross) Consumption—**EIA, *State Energy Data Report 1999, Consumption Estimates, (SEDR)* DOE/EIA-0214(99) (Washington, DC, May,2001), p. 21, column titled, "Total."
Residential Geothermal and Solar—EIA, *SEDR,* p. 22, columns titled "Geothermal" and "Solar."
Residential Wood—Combined State Energy Data System 1997 (CSEDS).
Commercial Geothermal—EIA, *SEDR,* p. 23, column titled "Geothermal."
Commercial Wood—CSEDS.
Refinery Use—CSEDS.
Crude Oil Lease, Plant, and Pipeline Fuel—CSEDS.
Natural Gas Lease and Plant Fuel—CSEDS.
Hydroelectricity—EIA, *SEDR,* p. 24, column titled, "Hydroelectric Power."
Geothermal, Wind, and Solar—EIA, *SEDR,* p. 24, column titled, "Other."
Wood and Waste—CSEDS.
Natural Gas Pipeline Fuel—CSEDS.
Electrical System Energy Losses—EIA, *SEDR,* Tables 12-15, pp. 22-25, sum of four end-use sectors' column titled, "Electrical System Energy Losses."
Total Adjustments—CSEDS.
Net Consumption—CSEDS.

Table A53. Reallocations of Excess Refinery Fuel Consumption

Year	Fuel	Thousand Barrels	Excess in:	Reallocated to:
1971	Residual Fuel	294	Kansas	Oklahoma
1973	Residual Fuel	45	Group 4: Kentucky, Tennessee	Illinois
1979	LPG	173	Montana	Wyoming
1985	Residual Fuel	212	PADD IV	PADD V
1986	Residual Fuel	403	PADD IV	PADD V
1987	Residual Fuel	497	PADD IV	PADD V
1988	Residual Fuel	305	PADD IV	PADD V
1989	Residual Fuel	381	PADD IV	PADD V
1990	Residual Fuel	332	PADD IV	PADD V
1991	Residual Fuel	374	PADD IV	PADD V
1992	Residual Fuel	355	PADD IV	PADD V
1996	Residual Fuel	179	PADD IV	PADD V
1997	Residual Fuel	92	PADD IV	PADD V
1998	Residual Fuel	64	PADD IV	PADD V
1999	Residual Fuel	125	PADD IV	PADD V

Source: EIA calculations based on data from the *State Energy Data Report* and the *Petroleum Supply Annual*.

EIA-457, "1993 Residential Energy Consumption Survey," Census region percentages were developed and applied to the residential and commercial wood consumption of the States in each region in 1990 through 1999.

Crude Oil Lease, Plant, and Pipeline Fuel. Industrial crude oil is assumed to be used as lease, plant, and pipeline fuel. Because these are process fuel uses, this crude oil is removed from CSEDS industrial sector consumption.

Natural Gas Lease and Plant Fuel. Natural gas consumed as lease and plant fuel is process fuel and is subtracted from CSEDS industrial sector natural gas totals by State and year.

Industrial Hydroelectricity, Geothermal, Wind, Photovoltaic, and Solar Thermal Energy. Electricity generated by industries from hydropower and geothermal, wind, photovoltaic, and solar thermal energy has no fuel cost. Operation and maintenance costs associated with these energy sources are included indirectly in the prices of the industries' products. Therefore, CSEDS industrial use of these renewable sources are removed from the expenditure calculations.

Industrial Wood and Waste. The cost of wood and waste products used for energy vary widely from more expensive woods to free industrial waste products. Industrial consumption is broken into two segments, manufacturing industries and nonutility power producers in order to estimate quantities received at no cost.

Adjustments to manufacturing wood and waste consumption in 1994 forward are based on information gathered on the Form EIA-846, "1994 Manufacturing Energy Survey (MECS)." Adjustments to manufacturing consumption in 1980 through 1993 are based on information gathered on the Form EIA-846, "1991 Manufacturing Energy Survey." Adjustments to industrial wood and waste consumption in 1970 through 1979 are based on the 1980 average ratios for each State. The 1991 and 1994 MECS report the quantities consumed and quantities purchased of five types of wood and waste in each of four (MECS1991) or five (MECS 1994) SIC categories of industries. The two quantity series are used to calculate SIC category average percentages of wood and waste obtained at no cost. These percentages are applied to the estimated consumption in those SIC categories in each State to estimate the State's manufacturing uncosted wood and waste.

Estimates of wood and waste obtained at no charge by nonutility power producers for 1989 forward are developed from the MECS data series above assuming that nonutilities are not purchasing waste, but are paying for the same proportions of wood fuel as the manufacturers are.

Each State's industrial wood and waste consumption quantities acquired at no cost are the sum of the estimated manufacturing and nonutility power producers' quantities for each year.

Natural Gas Pipeline Fuel. Most of the natural gas consumed in the transportation sector of CSEDS is used to power pipelines. As such, it is a process fuel and is subtracted from CSEDS consumption in order to calculate expenditures.

Electrical System Energy Losses. The amount of energy lost during generation, transmission, and distribution of electricity (including plant use and unaccounted for electrical energy) is process fuel and is

subtracted from sectoral energy consumption estimates used in *SEPER*. The energy losses are "paid for" when residential, commercial, industrial, and transportation sector consumers buy the electricity produced at electric utilities.

Data Sources

Capacity of Petroleum Refineries. 1982 forward: Energy Information Administration, *Petroleum Supply Annual, Volume 1*, tables titled "Number and Capacity of Operable Petroleum Refineries," columns titled, "Crude Capacity, Barrels per Calendar Day, Operating" (1982–1985), and "Atmospheric Crude Oil Distillation Capacity, Barrels per Calendar Day, Operating" (1986 forward).

1979–1981: Energy Information Administration, Energy Data Reports, *Petroleum Refineries in the United States and U.S. Territories*, table titled "Number and Capacity of Petroleum Refineries," column heading, "Crude Capacity, Barrels per Calendar Day, Operating."

1978: Energy Information Administration, Energy Data Reports, *Petroleum Refineries in the United States and Puerto Rico*, table titled "Number and Capacity of Petroleum Refineries," column heading, "Crude Capacity, Barrels per Calendar Day, Operating."

1970–1977: Bureau of Mines, U.S. Department of the Interior, Mineral Industry Surveys, *Petroleum Refineries in the United States and Puerto Rico*, table titled "Number and Capacity of Petroleum Refineries," column heading, "Crude Capacity, Barrels per Calendar Day, Operating."

Fuel Consumed at Refineries. 1981–1994, 1996, and 1998 forward: Energy Information Administration, *Petroleum Supply Annual, Volume 1*, table titled "Fuels Consumed at Refineries by PAD District." Data for 1991 are from a separately published an EIA *Errata* dated November 10, 1992, GPO Stock No. 061-003-00758-9.

1995, 1997: Energy Information Administration, *Petroleum Supply Annual, Volume 1*, table titled "Fuels Consumed at Refineries by PAD District." Data for coal, electricity, and natural gas are not published and values for the previous year are repeated.

1976–1980: Energy Information Administration, Energy Data Reports, *Crude Petroleum, Petroleum Products, and Natural Gas Liquids*, table titled "Fuels Consumed for All Purposes at Refineries in the United States, by States."

1970–1975: Bureau of Mines, U.S. Department of the Interior, Mineral Industry Surveys, *Crude Petroleum, Petroleum Products, and Natural Gas Liquids*, table titled "Fuels Consumed for All Purposes at Refineries in the United States, by States."

1970 forward: Energy Information Administration, Combined State Energy Data System, industrial sector consumption estimates for aviation gasoline blending components, crude oil, motor gasoline blending components, natural gasoline (1970–1983), pentanes plus (1984 forward), petroleum coke, plant condensate (1970–1983), still gas (excluding still gas consumed as petrochemical feedstocks, 1970–1985), unfinished oil, and unfractionated stream (1970–1983).

Natural Gas Lease, Plant, and Pipeline Fuel Use. 1970 forward: EIA *Natural Gas Annual 1994, Volume II,* Table 14 (1970–1992), EIA *Historical Natural Gas Annual 1930 Through 1999,* Table 15 (1993 forward).

Residential and Commercial Wood. 1990 forward: EIA, unpublished data from the "1993 Residential Energy Consumption Survey," Form EIA-457.

1970–1989: EIA, unpublished data from the "1980 Residential Energy Consumption Survey," Form EIA-457.

Industrial Wood and Waste. 1994 forward: EIA, unpublished data from the "1994 Manufacturing Energy Consumption Survey" (Form EIA-846).

1970–1993: EIA, unpublished data from the "1991 Manufacturing Energy Consumption Survey" (Form EIA-846).